Zeitschrift für wissenschaftliche Zoologie, Bd. xxxviii. Heft 2 (April 27, 1883), contains:—Contribution to a knowledge of the infusoria, by Dr. G. Entz (Plate 8).—On the primordial skull of some mammalia, by Fred. Decker (Plate 9).—On some Cœlenterata of the South Sea, by Dr. R. v. Lendenfeld, of Melbourne, Part II.—On new Aplysinidiæ (Plates 10 to 13).—On the embryology of Hydra, by Dr. A. Korotneff (Plate 14).—On the larval development of *Phoxichilidium plumulariæ*, nov. sp., by Dr. R. v. Lendenfeld, with woodcuts.

Rendiconti of the *R. Istituto Lombardo di Scienze e Lettere*, May 10 and 17.—Preliminary inquiry into Zanardelli's proposed penal code (continued), by Prof. A. Buccellati.—On the commentaries of Gaius and the paraphrase of Theophilus, by Dr. C. Ferrini.—A few remarks on the first five sections of Ricardo's chapter on value, by Prof. E. Nazzani.—On the mortality of infants in the various provinces of Italy, by Prof. G. Sormani. The death-rate during the first month is shown to be much higher in winter than in summer, and in the northern than in the southern provinces. Thus: 50 per 1000 in Palermo, 190 in Padova, medium for the kingdom 91·9.—On the formation of the primitive line and primitive cleft in the gastrula of the Mexican axolotl, by Prof. G. Bellonci.—Alterations in the lower hollow vein aggravating hepatic cirrosis, by Prof. A. de Giovanni.—Observations on the comet of Brooks made in the Brera Observatory, Milan, by G. V. Schiaparelli.—On a deposit of fossiliferous Pliocene clay recently discovered near Taino, to the east of Angera, in Lombardy, by Prof. T. Taramelli.

SOCIETIES AND ACADEMIES

LONDON

Linnean Society, June 21.—Prof. P. M. Duncan, F.R.S., vice-president, in the chair.—The following gentlemen were balloted for and elected Fellows of the Society, viz. Messrs. E. J. Baillie, J. Borland, K. McKean, E. C. Malan, and H. A. A. Nicholls.—A specimen of *Polyporus sulfureus* was exhibited for the Rev. A. A. Harland, obtained from the stem of a yew tree in the Cliveden Woods, Bucks.—A series of fossil fruits, &c., from Australia were shown for Dr. Charles E. Barnard; among these were species of *Phymatocaryon*, *Eisothecaryon*, *Ochthodocaryon*, *Spondylostrobus*, *Plesiocapparis*, and others.—Mr. W. T. Thiselton Dyer exhibited several interesting vegetable economic products, and made remarks thereon. Of a species of wax extracted by Mr. D. Morris of Jamaica from *Myrica microcarpa*, it was stated that while the berries are used for obtaining wax in South Africa, the West Indian fruits had not hitherto been used for this purpose. A gray, camphor-like substance, the product of *Artemisia noxa*, he mentioned as a rare example among the Compositæ; and there was a probability that this camphor was used in the production of Indian ink by the Chinese, and gave the peculiar aromatic odour to the true China ink. A rosary was shown made of fruits of *Trapa verbanensis*, De Not. (locally called Frutti de' Lago), from the Lago di Varese, Italy; also specimens of wax and candles made from *Rhus vernicifera* of Japan; the latter preparation is quite a local industry, which unfortunately is now ceasing on account of the rivalry of the cheap American oils.—The following plants were exhibited, viz., *Arnoseris pusilla* and *Hypochæris glabra*, obtained by Mr. Thomas Howse in West Surrey, and specimens of the Cheddar Pink (*Dianthus cæsius*), which had been grown freely by Mr. C. F. White on his garden wall at Ealing.—A paper on the structure of the hard parts of the Fungidæ (part 2, Lophoserinæ), was read by Prof. Duncan, and another by Mr. R. A. Rolfe of Kew, on the Selagineæ described by Linnæus, Bergius, and Thunberg.—A communication was read from Mr. H. G. Doran, on the malleus of *Rhytina stelleri*, based on a specimen obtained in the voyage of the *Vega*, and exhibited in the Swedish Department of the International Fisheries Exhibition, under the charge of Prof. Smitt of Stockholm. The author concludes that this auditory ossicle in the extinct Northern Sea Cow (*Rhytina*) is larger than in the Manatee (*Manatus*), and therefore it is the largest and bulkiest malleus to be found in the whole section of the animal kingdom where such a bone exists. In the character of its body it resembles that of the Manatee rather than that of the Dugong (*Halicore*); while in the manubrium it differs in *Rhytina* from the other Sirenia, and is far more generalised.—The following paper was taken as read, Notes on some new economic products recently received at the Royal Gardens, Kew, by W. T. Thiselton Dyer. Therein he treats of the West African indigo, the Inhambane copal, and the Ogea gum as exhibited at a previous meeting.—On the testis of *Limulus*, formed a communication from Mr. W. B. S. Benham. He describes the structures in question, noting the apparent isolation of many of the spermatic sacs, and the probability that they are not diverticula of the spermatic duct, but secondarily acquire connection therewith, the two structures being independently developed. He remarks that in no crustacean do the ducts of the generative glands form a network, whereas in the King Crab, as in the Scorpion and other Arachnids, they do.—There followed a paper on the Mollusca of H.M.S. *Challenger* (part xx.), by the Rev. R. Boog Watson. This contains a continued descriptive account of the family Bullidæ, dealing with the genera *Atys* and *Scaphander*, along with the group *Aplysiidæ*, genus *Dolabrifera*.

Zoological Society, June 5.—Osbert Salvin, F.R.S., vice-president, in the chair.—Mr. Sclater exhibited and made remarks on two birds obtained near Lima by Prof. W. Nation, C.M.Z.S., and on a collection of birds made in New Britain, New Ireland, and the Solomon Islands, that has been sent to him for examination by the Rev. George Brown, C.M.Z.S.—Mr. Sclater also called the attention of the meeting to a Condor from Peru, living in the Society's Gardens since 1877, which he was induced to believe was a specimen of the "*Condor pardo*," or *Sarcorhamphus æquatorialis*, Sharpe.—Mr. G French Angas exhibited a collection of butterflies made during a recent visit to the island of Dominica, W.I.—A communication was read from Prof. Owen, C.B., entitled "Embryological Testimony to General Homology."—A communication was read from the Rev. O. P. Cambridge on some new genera and species of spiders. Eight spiders, representing as many new genera, were described: two of them belonged to the family Theraphoridæ, one to the Drasiidæ, and the others to the Thomisidæ. Three of these species were from Ceylon, three from Caffraria, one from New Zealand, and one from California.—A communication was read from Mr. A. G. Butler containing an account of the Lepidoptera collected by Mr. H. O. Forbes in the islands of the Timor-Laut group. Examples of twenty-three species were obtained.—A communication was read from Mr. Herbert Druce containing descriptions of some new species of moths of the families Zygænidæ and Arctiidæ, mostly collected in Ecuador by Mr. C. Buckley. The number of new species described was fifty, belonging to twenty-four genera.—A paper was read by Messrs. Godman and Salvin, containing remarks on the variations of certain species of butterflies of the genus *Agrias*.—Mr. G. A. Boulenger read a report on a collection of reptiles and Batrachians from the Timor-Laut group of islands, formed by Mr. H. O. Forbes. Two new species were described—the one a lizard of the Australian genus *Lophognathus*, and the other a snake of the Indian genus *Simotes*, proposed to be named respectively *L. maculilabris* and *S. forbesii*. The snake was of special interest, as no species of the genus *Simotes* had hitherto been previously known to occur eastward of Java.

Chemical Society, June 21.—Dr. W. H. Perkin, president, in the chair.—The following gentlemen were elected Fellows:—G. S. Bowler, C. Beringer, T. H. Coleman, A. Esilman, H. E. Harrison, C. Hulke, H. Heap, B. Hobbs, C. T. Heycock, W. J. Livingston, B. P. Lascelles, H. R. Mill, M. F. Purcell, J. E. Richardson, F. G. Roberts, W. R. Reffel, A. Smith, E. H. B. Stephenson, A. W. Soward, A. H. Samuel, D. Wilson, and R. Williams.—The following papers were read:—On evaporation in vacuo, by H. McLeod. The author has contrived several forms of apparatus, and in the present paper describes two. One in which the water was evaporated in a glass dish with ground top, at a temperature not exceeding 50°, 50 c.c. evaporated in two hours; a Körtings water pump was used to obtain the vacuum. Instead of the dish a test tube or a combustion tube may be employed. In the second form of apparatus sulphuric acid was allowed to trickle down the tube into which the aqueous vapour passed, and thus the use of a condenser was avoided.—Note on a hydrocarbon and some substitution derivatives from camphor, by H. E. Armstrong.—On the preparation of the pentathionates, by G. S. Shaw. The author has reinvestigated this subject, because Prof. Spring states in *Liebig's Annalen* that he was unable to obtain pentathionates by using the method described by V. Lewes. The author completely confirms the results obtained by Lewes, and has obtained beautifully crystalline salts in which the ratio of potassium to sulphur was as 2 atoms to 5. A note is appended to the paper by Watson Smith.—On the decomposition of ammonium nitrate;

an investigation into the rate of chemical change, by V. H. Veley.—Note on the action of allylic iodide upon phenol in the presence of zinc or aluminium foil, by P. Frankland and T. Turner. Orthopropyl phenol was obtained.—On a new gas burner for heating combustion tubes, by W. Ramsay.—On a by-product of the manufacture of aurin, by A. Claparède and Watson Smith. When aurin is prepared from phenol, oxalic acid, and sulphuric acid, some quantity of white crystals appears on the lids of the aurin-pots. These were examined by the authors, and were found to consist of a phenyl ortho-oxalic ether.

Meteorological Society, June 20.—Mr. J. K. Laughton, M.A., F.R.A.S., president, in the chair.—The following papers were read:—On the structure of the ice-cloud disposed in threads, proposed to be called "cirro-filum," by the Rev. W. Clement Ley, M.A., F.M.S. Of the cirriform clouds one of the most important to the weather forecaster is that to which the author has given the name of "cirro-filum." Having from the time he was twelve years of age carefully studied this cloud whenever visible, and having for the last twenty-five years made it the subject of minute study, he is enabled to bring forward some results which may prove of value. The author then gives, first, a short account of the mode in which he was led to prosecute this study; secondly, a classification of the more recent and reliable observations; and lastly, an explanation of the principal phenomena observed.—Notes on a second series of experiments on the distribution of pressure upon flat surfaces perpendicularly exposed to the wind, by Richard H. Curtis, F.M.S. The results obtained in these experiments agree very closely with those of the former experiments.—On the reduction of wind records, by the Hon. Ralph Abercromby, F.M.S. The author discusses the significance and best method of deducing from anemographic records the total quantity, the quantity from different points of the compass, the relative frequency, the mean and annual velocity, the mean velocity from different quarters, the resultant, and the mean and diurnal direction of the wind.—The spectroscope as an aid to forecasting weather, by F. W. Cory, M.R.C.S., F.M.S.—Note on river temperatures as compared with air temperatures at Greenwich and Bremen, by Robert H. Scott, M.A., F.R.S. The author compares the results given in a recent paper by Sir G. B. Airy on a comparison between the records of the temperature of the Thames and those of air temperature taken at Greenwich with those published by Herr von Freeden for the temperature of the Weser as compared with that of the air at Elsfleth, close to Bremen, for the ten years 1858–67.

Physical Society, June 23.—Prof. Clifton in the chair.—New member, Mr. Stearn.—Prof. D. E. Hughes, F.R.S., exhibited a number of experiments illustrating his theory that a magnet is made up of magnetic molecules each of which is a small magnet. When a magnetic metal is in a neutral state he showed that there is a symmetrical arrangement of the molecules such as to make them satisfy their mutual attractions; not as on Ampère's theory a "higgledy-piggledy" arrangement. Prof. Guthrie stated that a piece of watch-spring magnetised retains its magnetism when impregnated with mercury. Prof. Everett, Mr. W. H. Coffin, and others remarked that Ampère's theory tried to account for the magnetism of the molecules. Professors Perry and Ayrton observed that when soft iron is between red and white hot, it ceases to be attracted by a magnet.—The new absolute sine galvanometer of Prof. Minchin was then exhibited to the meeting by Prof. G. Carey Foster. It is intended for the Cornell University, and measures less than the E.M.F. of a Daniell cell. The principle of the instrument was described at a former meeting of the Society. Prof. Ayrton, Lord Rayleigh, Mr. Coffin, and Prof. Clifton offered some remarks on the apparatus.—A note on the induction-balance effect and the densities of alloys of copper and antimony, by Mr. George Kamensky, A.R.S.M., was then explained by Prof. Chandler Roberts. These experiments were to determine whether the curve of the electrical resistance of the copper antimony alloys would be a straight horizontal line, U-shaped or of the L type. They were found to belong to the last type. It is seen from the curve exhibited that there is a rapid fall from copper to the alloy containing only 10 per cent. antimony, and this decrement is continued until the alloy $StCu_4$ is reached, when the curve turns rapidly and rises to $StCu_2$, then turns again, and passes to pure antimony. Prof. Roberts has shown that the alloy $SnCu_4$ occupies the lowest point of the curve, namely, the position that in the copper-antimony series is occupied by the alloy $StCu_4$. In the copper-tin series the second critical point is held by $SnCu_3$, and in the copper-antimony curve this point is held, not by Cu_3Sb, but Cu_2Sb, the formula for the violet alloy known to alchemists as the "regulus of Venus." The specific gravities were also plotted in curves, showing that the alloy Cu_2Sb does not stand out from the rest, while the alloy Cu_4Sb has a higher density than copper.

EDINBURGH

Royal Society, June 18.—Prof. Maclagan, vice-president, in the chair.—The Astronomer-Royal for Scotland presented a paper which was read by Prof. Crum Brown, on bright clouds in a dark night sky. This phenomenon Prof. Smyth had twice witnessed, on April 8, 1882, and April 30, 1883. On both these occasions the meteorological conditions were peculiar, the air being for a few hours remarkably dry. The explanation given was that the glow on the clouds was due to reflection of the gas-lights of Edinburgh from the hollow water-drops in the cloud, which from their floating in a very dry atmosphere had become sufficiently thin-walled to throw back a strong reflection from the two surfaces.—Prof. Tait read a mathematical note by Mr. Anglin, in which a solution was given of the problem to express x^m in terms of powers of x lower than n, when x^n is given in terms of these lower powers, and m is greater than n.—Prof. Tait communicated the results of his recent measurements of the compressibility of water. The water was compressed in a tube silvered inside and dipping with its lower and open end in a trough of mercury. The whole was placed inside the hydraulic press, and exposed to pressures of 1, 2, 2½, and 3 tons weight per square inch, the compression of the water being measured by the height of ascent of the mercury, which was given at once by the lower limit of the silver film. For water, both fresh and salt, the compressibility was found to diminish with increase of pressure, diminishing at much the same rate in both cases, although to begin with the fresh water was more compressible than the sea-water in the ratio of about 72 : 67. The results obtained for the fresh water could be very accurately represented by the formula $c = \cdot 0072 (1 - \cdot 043 p)$, where c is the true compressibility per ton at pressure p tons weight per square inch. The mean temperature of the water was 12° C. At the same temperature alcohol of density ·83 showed a much greater compressibility (·01202 for one ton weight per square inch), which also diminished with increase of pressure—·01043 being the average compressibility for 3 tons weight.

SYDNEY

Linnean Society of New South Wales, April 25.—The following papers were read:—Notes on a collection of fishes from the Burdekin and Mary Rivers, Queensland, by William Macleay, F.L.S., &c. The new species described are *Serranus estuarius*, *Therapon fuliginosus* and *parviceps*, *Diagramma labiosum*, *Corvina argentea*, *Caranx compressus*, *Cybium semifasciatum*, *Platycephalus Mortoni*, *Eleotris planiceps*, *Atherinichthys maculatus*, *Mugil Ramsayi*, *Chatoëssus elongatus*, *Anguilla margiuipinnis*, and *Tæniura Mortoni*.—By J. J. Fletcher, M.A., B.Sc., notes on a viviparous lizard. The author's attention had been drawn to the subject during last January, when he obtained at Burrawang several examples of female lizards in an advanced stage of pregnancy. The embryos were from two to three inches long, enveloped in a thin and transparent chorion quite devoid of the calcareous matter with which it is more or less impregnated in the oviparous species.—Notes on a method of obtaining water from *Eucalyptus* roots, as practised by the natives of the country between the Lachlan and Darling Rivers, by K. H. Bennett.—Prof. Stephens exhibited a photograph and a sketch forwarded by Mr. C. Jenkins, representing a fossil from the Devonian formation of the Murrumbidgee valley, near Yass. Mr. Jenkins is inclined to refer it to *Asterolepis* (which is closely connected with *Pterichthys*), but chiefly on account of the character of sculpture of the scales. On the same ground he doubts its relationship to *Cacosteus* or *Cephalaspis*. Prof. Stephens added that without the actual specimen before them with all its collected fragments, it would be premature to determine even the genus of this ancient fish, but pointed out that it appeared to have some points of resemblance to *Macropetalichthys* of the North American Devonians.—Mr. J. J. Fletcher exhibited a specimen of a giant earthworm, 25 inches long, from Burrawang, N.S.W. It probably belongs to Prof. M'Coy's genus *Megascolides*, and its existence in this colony is now recorded for the first time.

BERLIN

Physical Society, May 25.—Dr. Aron spoke on the glow-light coal, which, as is well known, is distinguished by its electrical conductibility and by its resistance to combustion when exposed to the atmosphere in an incandescent condition, and which thus resembles graphite, which possesses both these properties in a high degree. Experiments which were made in order to determine whether such good conducting and indestructible coal, as well as artificial graphite, could be made artificially, led to the result that organic substances, *e.g.* paper, cloth, wadding, when charred in vacuo at very high temperatures in graphite crucibles, acquire the property of resisting combustion and afterwards become good conductors. Wood-coal also, which, though it is with difficulty combustible, is a bad conductor, was converted into a good conductor by strong incandescence. When the incandescence and the subsequent cooling down were conducted in a stream of hydrogen, this had no effect upon the resistance to combustion. Soot, which was made incandescent under similar conditions, also acquired the properties of graphite in a high degree, so that for many purposes (*e.g.* in galvano-plastic work) soot that has been made strongly incandescent can be made to replace graphite. The property of leaving an impression which graphite possesses, and which makes it so well adapted to the manufacture of lead-pencils, was not acquired by the different kinds of carbon in the process of incandescence; very probably this property depends upon the crystalline composition of the graphite.

VIENNA

Imperial Academy of Sciences, March 8.—E. Mach, experiments and notes on the system of lightning-conductors of Mr. Melsens.—C. von Ettingshausen, contributions to the knowledge of the Tertiary flora of Java.—L. Pfaundler, on the mantle-ring machine of Kravogl, and its relation to the machine of Pacinotti-Gramme.—F. Hochstetter, sixth report of the Prehistoric Commission: on the mounds recently found at Watsch and St. Margarethen (Carniola).—F. Steindachner, on Japanese fishes.—G. Goldschmidt and R. Wegscheider, on the derivatives of pyrene.—R. Wegscheider, on some derivatives of opianic acid.—E. von Bruecke, on alcophyr, and on the true and the so-called biuret reaction.

April 5.—E. Mach, preliminary communication on new experiments made with the influence-machine.—F. Lukas, on the knowledge of the absolute strength of vegetable tissues.—W. Simerka, on the power of conviction (a mathematical study).—T. V. Tanovsky, on nitro and amido derivatives of azobenzene.—A. Nalepa, contributions to the anatomy of Stylommatophora.—A Lieben and L. Haitinger, preliminary communication on chelidonic acid.—E. Lippmann, on azylines.—B. Schwarz, on an eclipse of the sun mentioned by Archilochos. T. M. Pernter, psychrometrical studies.

PARIS

Academy of Sciences, *June 25*.—New methods of determining the right ascensions and absolute declinations of the stars (continued), by M. Lœwy.—Experimental studies in relation to the photometric observation of the eclipses of the satellites of Jupiter, by MM. A. Cornu and A. Obrecht.—A study of the deformations produced by sharp-edged tools in drilling, by M. Tresca.—On the employment of partial photographs in studying human and animal locomotion, by M. Marey. The object of this process is to avoid the great confusion caused by the superposition of numerous reflections in the case of slow locomotion. It is illustrated by a cut showing the attitude of the left leg of a man walking at a moderate pace and reflected at the rate of about sixty per second. The partial photographs obtained by this method enable the observer to analyse all kinds of motion, such as walking, running, leaping, and even action confined to one place.—On the action of mixtures of air with vapour of chloroform, and on a new process of anæsthesia, by Paul Bert. The experiments were made on dogs, which were treated with doses of chloroform diluted in varying proportions with air. From the effects observed it is hoped that many important problems may be solved connected with the action of this anæsthetic. But although all risk may thus be avoided in its application, the disadvantages inherent in chloroform itself cannot be overcome, and protoxide of azote still maintains its preeminence above all the anæsthetics.—On the reciprocal of homogeneity; similitude of mathematical formulas, by A. Ledieu.—Methods of separating gallium from ruthenium, osmium, arsenic, and selenium, by M. Lecoq de Boisbaudran.—On a case of long-standing hysteria, all the symptoms of which disappeared under the influence of aluminium, by M. Burcq.—On a method of computing secular perturbations in the elements of the orbits of planets, asteroids, comets, &c., by O. Callandreau.—A new generalisation of a formula of Lagrange, already generalised by Cauchy, by Em. Barbier.—On the relations of induction to electrodynamic action, and on a general law of induction, by M. Quet.—Automatic impression of telephotic despatches, that is, of despatches transmitted by light, memoir by M. Martin de Brettes.—On a method of determining by constant registration the slight movements of the crust of the earth. This method of recording microseismic movements was first suggested by MM. Bertelli and de Rossi, and forms the subject of a paper published in the *Engineer* for December 17, 1875.—On the sulphate of thorium, by Eug. Demarçay.—On a base derived from crotonic aldehyde, by Alph. Combes.—Researches on mesitylene, by MM. Robinet and Colson. A new glycol is described, and it is shown that the dichloride and the dibromide of mesitylene obtained by the action of chlorine and bromine on mesitylene gas are identical with the dichlorhydric and dibromhydric ethers of this gas.—Observations on the fermentation of breadstuffs, by M. Moussette.—On the concomitance of the anatomic and organographic characters of plants, by M. J. Vesque.—Borings at Rilhac, in the Brassac basin, east of Arvant, by M. Daubrée. These borings were most successful, revealing at a depth of eighty-six metres productive carboniferous strata underlying horizontal beds of clay and more or less argillaceous sandstones.—Borings at Toussieu, department of Isère, by M. Grand'Eury.—After piercing various alluvial, limestone, clay, and sandstone formations, coal was reached at a depth of 364 metres. These borings were begun after those of Chaponay had revealed carboniferous beds at the depth of 212 metres immediately below the marine molasse. The chief object of both is to determine the extension of the coal measures of the Loire basin under the tertiary plain in the north of Lower Dauphiny.—Scientific results of Col. Prejevalsky's journeys, and especially of his third expedition towards Tibet and the sources of the Yellow River, by M. Venukoff. Amongst the more important results were the animal and vegetable collections, comprising 408 specimens of 90 species of mammalia, 3425 of 400 species of birds, 976 of 50 species of reptiles, 423 of 53 species of fishes, 6000 of insects, and 12,000 of 1500 species of plants.

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